

## **FINAL PROJECT SUMMARY REPORT**

### **BUSINESS AND FIRM ADDRESS**

[ULC Technologies](#) 88 Arkay Drive Hauppauge, NY 11788

### **DOT SBIR Program**

U.S. Department of Transportation/OST-R

### **DOT CONTRACT**

6913G620P8000100

### **PERIOD OF PERFORMANCE**

07/24/2020-1/22/2021

### **PROJECT TITLE**

Inline-Inspection for Both Circumferential Cracking and Axial Stress Using EMAT Guided Wave

### **SUMMARY OF COMPLETED PROJECT**

The Department of Transportation (DOT) awarded ULC the project titled “Inline-Inspection for Both Circumferential Cracking and Axial Stress Using EMAT Guided Wave” in July 2020. The main objective of this project is for ULC to evaluate and test Electromagnetic Acoustic Transducer (EMAT) guided wave technique for the detection of circumferential cracking, and the measurement of axial stress of the pipe. The performance and feasibility of using EMAT guided wave for circumferential cracking and axial stress will be evaluated and the prototype inline inspection (ILI) tool will be designed, fabricated, and tested.

In Phase I, the project focus was to validate the technique in the lab environment. For the circumferential cracking, the EMAT, with optimized sensitivity to crack-like defects, was used to scan a pipe sample with artificial defects. For the stress measurement, dog-bone steel samples were loaded by a tensile test machine and measured by EMAT guided wave to evaluate the stress level in the samples

**APPROVAL SIGNATURES**

Name	Title	Date
Aalap Shah	Director of Government R&D, ULC Technologies	2/25/2021